

What is claimed is:

1. A light source module comprising an emitter having a light-emitting surface and a pyramid collector mounted onto the emitter over the emitting surface, said pyramid collector having a proximal end facing the emitting surface and a distal end facing away from the emitting surface.

2. The light source module as recited in claim 1, wherein the proximal end of the pyramid collector is in contact with the light-emitting surface.

3. The light source module as recited in claim 1, wherein the proximal end of the pyramid collector has dimensions and shape that are approximately the same as dimensions and shape of the emitting surface.

4. The light source module as recited in claim 1, wherein the proximal end has a generally square shape and a distal end has a generally square shape.

5. The light source module as recited in claim 1, wherein the proximal end has a generally square shape and the distal end has a generally rectangular shape.

6. The light source module as recited in claim 1, wherein the proximal end of the pyramid collector is fitted around the emitting surface.

7. The light source module as recited in claim 1, further comprising a straight rectangular pipe section disposed adjacent to the distal end of the pyramid collector.

8. The light source module as recited in claim 1, further comprising a dome portion.

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9. The light source module as recited in claim 8, further comprising a straight pipe portion disposed between the dome portion and the pyramid collector.

10. The light source module as recited in claim 8, further comprising a generally disk-shaped flange disposed between the dome portion and the pyramid collector.

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11. The light source module as recited in claim 1, wherein the distal end of the pyramid collector has a generally pincushioned configuration.

12. The light source module as recited in claim 1, wherein the pyramid collector collects at least about 70 percent of light emitted by the emitter.

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13. The light source module as recited in claim 1, wherein a distance between the proximal and distal ends of the pyramid collector is about 3 to 5 times longer than a largest diagonal of its distal end.

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14. The light source module as recited in claim 1, wherein the pyramid collector has sides that taper from about 2 to about 6 degrees from the distal to the proximal end.

15. The light source module as recited in claim 1, wherein the pyramid collector has sides that taper no more than about 10 degrees from the distal to the proximal end.

16. An illumination system, comprising:

a plurality of light source modules, each light source module comprising an emitter having a light-emitting surface and a pyramid collector mounted onto the emitter over the emitting surface, each pyramid collector having a proximal end facing the emitting surface and a distal end facing away from the emitting surface;

an illumination target; and

a system of optical elements disposed between the at least one light source module and the illumination target.

17. The illumination system as recited in claim 16, wherein the plurality of the light source modules is disposed in an array within a non-radially symmetrical aperture.

18. The illumination system as recited in claim 17, wherein the illumination target is an image-forming device disposed for being illuminated at an angle and having a plurality of mirrors rotatable about a pivot axis, and wherein the non-radially symmetrical aperture has a

long dimension and a short dimension and is oriented so that the long dimension is aligned with the pivot axis of the mirrors of the image-forming device.

19. The illumination system as recited in claim 16, wherein the light source modules and the system of optical elements are configured to form a plurality of channels aimed substantially into the illumination target.

20. The illumination system as recited in claim 19, wherein the light source modules are disposed tangentially to and along a spherical surface.

21. The illumination system as recited in claim 16, wherein the proximal end of each pyramid collector is in contact with the emitting surface of the emitter the pyramid collector is mounted on.

22. The illumination system as recited in claim 16, wherein proximal end of each pyramid collector has dimensions and shape that are approximately the same as dimensions and shape of the emitting surface of the emitter the pyramid collector is mounted on.

23. The illumination system as recited in claim 21, wherein the proximal end of each pyramid collector has a generally square shape and a distal end has a generally square shape.

24. The illumination system as recited in claim 21, wherein the proximal end of each pyramid collector has a generally square shape and the distal end has a generally rectangular shape.

5 25. The illumination system as recited in claim 16, wherein the proximal end of each pyramid collector is fitted around the emitting surface of the light source module the pyramid collector is mounted on.

10 26. The illumination system as recited in claim 16, wherein each light source module further comprises a straight rectangular pipe section disposed adjacent to the distal end of each pyramid collector.

15 27. The illumination system as recited in claim 16, wherein each light source module further comprises a dome portion.

28. The illumination system as recited in claim 27, wherein each light source module further comprises a straight pipe portion disposed between the dome portion and the pyramid collector.

20 29. The illumination system as recited in claim 27, wherein each light source module further comprises a generally disk-shaped flange disposed between the dome portion and the pyramid collector.

30. The illumination system as recited in claim 16, wherein the distal end of each pyramid collector has a generally pincushioned configuration.

5 31. The illumination system as recited in claim 16, wherein each pyramid collector collects at least about 70 percent of light emitted by the emitter the pyramid collector is mounted on.

10 32. The illumination system as recited in claim 16, wherein a distance between the proximal and distal ends of each pyramid collector is about 3 to 5 times longer than a largest diagonal of that pyramid collector's distal end.

15 33. The illumination system as recited in claim 16, wherein each pyramid collector has sides that taper from about 2 to about 6 degrees from the distal to the proximal end of that pyramid collector.

34. The illumination system as recited in claim 16, wherein each pyramid collector has sides that taper no more than about 10 degrees from the distal to the proximal end of that pyramid collector.

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35. The illumination system as recited in claim 16, wherein the proximal end of each pyramid collector has a generally square shape and the distal end of each pyramid collector has a generally square shape.

5 36. The illumination system as recited in claim 16, wherein the proximal end of each pyramid collector has a generally square shape and the distal end of each collector has a generally rectangular shape.

10 37. The illumination system as recited in claim 16, wherein the system of optical elements is configured to image the distal end of each pyramid collector onto the illumination target.

38. The illumination system as recited in claim 37, wherein the images of the emitting surfaces are substantially superimposed to form an illumination patch, said illumination patch substantially filling the illumination target.

15 39. The illumination system as recited in claim 37, wherein the images of the emitting surfaces are closely packed to form an illumination patch, said illumination patch substantially filling the illumination target.

20 40. The illumination system as recited in claim 37, wherein the images of the emitting surfaces overlap to form an illumination patch, said illumination patch substantially filling the illumination target.

41. The illumination system as recited in claim 16, wherein a shape of at least one of the distal ends of the pyramid collectors substantially matches a shape of the illumination target.

5 42. The illumination system as recited in claim 41, wherein the shape of the illumination target is substantially square.

43. The illumination system as recited in claim 41, wherein the shape of the illumination target is substantially rectangular.

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